STREAM TROUT FISHERY MANAGEMENT IN THE SOUTHEASTERN UNITED STATES

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ABSTRACT

Trout stream management consists of protection of existing waters from further degradation, and management of the fishery through regulation implementation and stocking programs to manipulate use patterns. The dwindling trout resource is impacted by an increasing number of resource users. Management of a trout fishery should consider attitudes of trout fishermen expressed in their definitions of quality angling. An area-wide program should be managed to provide a variety of angling experiences. Regulations and stocking programs are essential management tools to manipulate use patterns to protect the resource and at the same time provide for the desires of trout fishermen.

The management of a stream trout fishery is in some respects much easier, and in other respects, much more difficult than other types of fisheries. The trout stream is usually a more readily biologically definable resource—smaller waters, lower species composition, and stringent habitat parameters. Stream trout populations can be increased through proper habitat alteration. Fisherman yield can be effectively regulated through use of regulations. Stocking programs can provide, with an acceptable cost benefit ratio, an artificial population to accomodate an increasing trout fishing demand.

However, there are problems in the management of this resource. Trout management, more than any other fisheries management program, has been clouded by the desires, demands, emotions, and ritualism of trout fishermen. This has resulted in many management practices being decided through public sentiment.

The manager deals with a resource that is constantly dwindling through habitat degradation. Although man-made trout habitat, such as tailwaters below large impoundments, may be the prime trout habitat in certain areas, proposed or under-construction back-to-back reservoirs, such as those on the Little Tennessee and Savannah Rivers, will inundate them.

Poor land use practices, including overstory removal, stream bank degradation, instream gravel mining, and channel alteration increase ambient water temperatures and siltation of stream bottoms. Unregulated construction, timber sales, road building and farming practices increase turbidity (England 1975) with concomitant increases in siltation problems. Low-head impoundments elevate ambient stream temperatures above the optimum for trout growth during the summer months (England and Fatora 1976).

These deleterious land-use practices increase ambient water temperatures and lower productivity. In addition, in areas of changing land-use patterns where large tracts are subdivided into residential or second-home lots, more and more streams on private land are becoming unavailable to public fishing.

Unfortunately, this dwindling resource, measured both by decreasing area and productivity, is further affected by an increasing demand for trout fishing. As an example, the number of license-buying trout anglers in Georgia is increasing at a trend of 3%/year (Georgia State University Environmental Research Group 1973). Resident trout stamp sales increased 5.1% from license year 1973 to 1974. There are an estimated 120,000 trout fishermen in Georgia that spend approximately 2.5 million days or 10 million hr fishing annually. The resource that supports this pressure consists of approximately 882 miles of natural trout streams, three trout tailwaters, and several second-story reservoirs.

Trout stream management consists of three main approaches. The first, and possibly the most important, is protection and enhancement of existing waters. The other two approaches, implementation of regulations and stocking of hatchery fish, can be utilized in combination to manage the fishery by their mutual effects on fishermen yield and fishing pressure.

This paper analyzes the psyche and various wants of the trout fisherman and the impact of these on the trout management program.

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USER ORIENTATION

A successful trout management program involves consideration of the goals of the fishermen. Numerous intangible factors that combine to develop the psyche of trout fishermen can at least be partially identified, certainly most can't be clearly defined. For instance, fishermen want to catch fish, but not to catch them too easily. Thus, fishing is rated on the amount of effort expended to catch a fish. Presumably, the more difficult a fish is to catch, the more prized the catch. Fox (1976), a fisherman-author from Pennsylvania, has this to say, "The more hazardous the cost, the greater the challenge. The more complicated the landing, the more cherished the catch." However, this holds only to a degree, because the lowly (to most fishermen) carp is as difficult to catch as a brown trout, but usually is not highly prized.

Fishermen even sometimes handicap themselves to create obstacles that increase the catch effort, such as using light tackle to reduce the effectiveness of their gear. Sometimes, light tackle is justified, but usually serves only to increase the effort required. The trout fisherman views this as increasing the "sport". Also, fish in certain bodies of water are more wary, or "educated", another desirable characteristic that tends to increase the effort required to be successful.

The rating of a certain species with fishermen can also be based on its fighting ability or sporting qualities, such as speed, leaping tendency, line tangling ability, and other attributes loosely associated with the "cunning" of the fish. This fighting ability can certainly be enhanced by matching the tackle to the fish sought.

Another factor which determines the desirability of a particular species to fishermen is its rating as table fare. This is an extremely inexplicable parameter. Most fishermen do not even realize that this factor is operative through their subconscious. I'm referring now to the fishermen that profess not to eat fish. Most (1976), outdoor writer and information officer with the Bureau of Land Management, was disappointed at catching a good sized fallfish after a hard fight while float-fishing the Juniata River in Pennsylvania. He postulated that his disappointment was due to this "trash" fish not being as edible as the smallmouth he was seeking, although it was the sport he was after.

Size is another factor, but is relative to the species sought. Brook trout are extremely popular, but don't reach the size of other trout. The same can be said of smallmouth bass. Here again, an irony exists, especially to non-fishermen, because fishermen strive to catch large fish but don't want all to be the same size. They want the joy of taking that occasional lunker to remain and become something to remember and talk about.

The above intangible factors that in combination determine the personal attitudes of fishermen can be extremely modified by the fisherman's education, income, fishing experience, occupation, and other factors. However, one basic fact emerges. No matter how these factors have been combined and modified to develop the individual fisherman's personal attitudes and requirements for satisfaction, the main underlying goal of any fisherman is to catch fish under the set of ground rules he chooses to fish by. Although many nebulous reasons (many times excuses) are given by fishermen for going fishing—the challenge, the trophy, the delicious food for the table, relaxation, the uncertainty, fresh air and exercise—the average fisherman goes to catch fish. The famous sportsman-author, Roderick Haig-Brown's answer is, "I do fish to catch fish—at least that is an idea not too far in the back of my mind while I am fishing . . . ."

An interesting discussion and review of relevant studies on angler motivation appeared in a recent SFI bulletin (Sport Fishing Institute 1976).

Trout fishing, more so than any other type of fishing, has evolved to the point of being a cult resplendent with its ritualism and code of conduct. It has spawned other activities that have become almost as important to the trout fisherman as the act of fishing itself, as fly-tying and rod-building. More books have probably been written about trout fishing and trout fishermen than all other types of fishing combined.

The fly fisherman who fishes for wild trout with his own creations and who professes to fish for the sport alone of battling the noble trout and kills few fish, is at the top of the hypothetical hierarchy of trout fishermen. This hierarchy proceeds down through the wild trout fisherman who uses hardware (spinning tackle) and bait to the lowly individual (as viewed by those at the top of the hierarchy) who is reduced to fishing for hatchery-reared trout with corn. These fishermen are sneeringly referred to by the hierarchic leadership as corn-dunkers or truck followers. This hierarchy fosters an elitist, or even a snobbish, attitude toward anyone lower than they in the trout fishing hierarchy.

This elitism is evident in the writings of many trout fishermen-sportsmen. Fox (1971) writes: "There have been a deterioration of sport fishing, a breakdown of stream ethics, and something else too. We have witnessed management and promotion geared to belly fishing for brand-new counterfeits which are well concentrated, and along with this, the utilization of our finest stream sections for sordid trout derbies of sorts." Schuder (1975) states, "The emphasis should be placed on establishing biologically sound quality fisheries, rather than the poor substitute that 'put-and-take' fisheries management provides."

The goals of the fisheries manager is to meld the desires of the various levels of the trout fishing hierarchy (resource users) while maintaining as high a quality trout fishery as possible within the framework of increasing user demand and stream habitat deterioration. Quality fishing is as nebulous and as hard to define as the attributes of the trout fisherman himself and the intangible factors that fostered his attitudes. The definition of quality is certainly influenced to a degree by the fisherman's standing in the hierarchy. The assumption can be made that as we progress up the hierarchy, more emphasis is placed upon sport than on fish for meat. However, the goal of the trout fisherman must always be kept in mind—catching fish. A survey to define quality in Yellowstone Park revealed that anglers selected number of trout caught (not necessarily harvested) as the single-most important element of quality with success rate (catching at least one fish) closely correlated with catch rate (Varley 1975). Borgeson (1975) defines quality wild trout fishing: "I know of no important sport fishery for which the average daily catch is less than that for wild trout, yet I know of no higher quality angling. Angling quality, in terms of pounds (not numbers) of fish caught is inversely related to catch rate. If such were not the case, I assure you the brown trout would not rank where it does as an esteemed sportfish. Consistent and predictable success kills quality fishing."

At the other end of the spectrum, quality fishing for catchable plants in stocked streams on wildlife management areas in the Chattahoochee National Forest in Georgia has been arbitrarily set at 4 fish/trip. This arbitrary harvest rate appears to be acceptable to the average fisherman on these waters as this harvest is maintained even when stockings are made at a level that should produce a higher catch/trip.

A good example of the inverse relationship of quality and harvest was revealed on Noontootla Creek (Fatora 1970) when the stream was placed under artificial only regulations. The catch rate (fish/hr) increased and the daily harvest decreased, successful anglers fishing about one hour less per trip.

Special interest groups have varied wants. Those whose idea of quality recreation is to catch fish for harvest with relative assurance of success require stocking programs. It is really immaterial today whether stocking programs created an increasing demand for trout fishing or whether the increasing demand fostered increased stocking programs. They are probably mutually enhancing phenomena.

Families fishing with children will fish on streams that are not dangerous for the children. Providing recreational fishing opportunities for this group of users is certainly a valid objective of a state agency's total program.

Wild trout programs require reduced recreation days and usually special regulations. Special regulations are difficult to enforce without the cooperation of the trout fishing public. Also, they are wide open to class action suits for discrimination against the average fishermen, especially when public waters are involved. This recently happened in Pennsylvania where 87 miles of fly-fishing-only area was involved (Abele 1975). However, resource agencies are expected to meet the demands of those who prefer wild trout fishing.

The managing agency has to try to manipulate use patterns to provide recreation while protecting the resource (Abele 1975). To accomplish this objective, the trout resource should be managed as an area-wide unit with variably managed subunits (Fatora 1975). This concept permits trout managers to provide a variety of management programs for quality experience for the various levels of the trout fishing hierarchy.

As an example, Georgia's program consists of both intensive stocking and native trout management. In 1974, we stocked 383,000 trout at 334 locations. These stockings are estimated to have impacted 228 miles of our total of 882 miles of natural trout streams. On the other hand, numerous streams are managed solely for wild trout under a variety of regulations, from statewide general regulations to artificials only to catch-and-release and trophy streams. Streams selected for wild trout management are selected for several reasons, one of the most important of which is present access patterns. The planning process has identified these streams and future access hopefully will be stringently regulated within the wild trout area.

Trout management should be a continuum of management practices from preservation of wild brook trout fisheries to purely put-and-take fisheries. We cannot heed only the elitist attitude of some trout fishermen, that stocking is not a viable management tool, or be overly sensitive to overuse on some streams.

The varied interests of the resource users must be considered in a trout management program. Qualitative aspects of trout fishing must be better defined and constantly evaluated. These qualitative aspects need equal consideration with the quantitative. The trout fishery should not be measured either by pounds of fish or user days.

The trout management objective should be to provide quality fishing for the varied desires of the resource users. However, any changes to accepted programs come slowly and the validity of the proposed change must be substantiated. Managing the fishermen is paramount to managing the resource.

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